State of Utah

Department of Environmental Quality

Richard W. Sprott
Executive Director

DIVISION OF WATER QUALITY
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Incoming
CC: Leslie
Tom
M0470089

March 28, 2008

Mr. Leonard Boteilho
Ames Construction, Inc.
3737 West 2100 South
West Valley City, UT 84120

Subject: Temple Mountain Energy Asphalt Ridge Mine #1, Uintah County, Utah
Ground Water Discharge Permit-By-Rule

Dear Mr. Boteilho:

The Division of Water Quality (DWQ) has reviewed the February 29, 2008 request for ground water discharge permit-by-rule submitted by Ames Construction for the proposed Temple Mountain Energy Asphalt Ridge Mine #1 in Section 31, Township 5 South, Range 22 East, Uintah County, Utah. Approximately 19 million tons of tar sand ore is proposed to be mined over the projected 10-year life of the mine. Tar sands will be processed by mechanical beneficiation of the one-inch minus ore to extract the impregnated bitumen. Secondary products will include silica sand and run-of-mine asphalt material. Water used for the extraction process will be pumped from the Green River and process water will be recovered and stored in a lined pond for recycling. Silica sand not sold and removed from the site will be deposited in an overburden disposal area during the initial part of the operation and backfilled into the mine pit thereafter. Bitumen will be mixed with petroleum distillate and transported by pipeline to holding tanks for eventual transport by trucks.

Below are several relevant factors for determining whether the proposed operation will have a *de minimis* effect on ground water quality to qualify for permit-by-rule.

1. Bitumen extraction will be done entirely by a mechanical process; no heat or chemical reagents will be used to extract bitumen from the sandstone ore.

2. Process water used for bitumen extraction will be recycled and stored in a pond lined with compacted native run-of-mine asphalt to minimize seepage.

3. Chemical analysis using the Synthetic Precipitation Leachate Procedure indicates that only minor amounts of hydrocarbons and salts are expected to leach from mine overburden and tar sands mined at the site.

4. Based on a soil survey and drill core data, the site stratigraphy is comprised of a thin veneer of unsaturated surface alluvium underlain by at least 350 feet of alternating shales, fluvial sandstones, and conglomerates of the Duchesne River Formation. The Duchesne Formation contains a number of tar sands and is underlain by the Mesaverde Formation, which also contains tar sands. Below the Mesaverde Formation is the Mancos Shale.

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5. Although incidental water exists intermittently between the overburden and the tar sands, there are no significant aquifers in the vicinity of the mining operation. Based on an EPA geodatabase search, the closest water wells are located in the Ashley Valley alluvial aquifer over two miles northwest of the site in Section 24, Township 5 South, Range 21 East.

Considering the factors above, the proposed mining and bitumen extraction operation should have a *de minimis* potential effect on ground water quality and therefore qualifies for permit-by-rule status under UAC R317-6-6.2A.(25). If any of these factors change because of changes in your operation or from better knowledge of site conditions, this determination may not apply and you should inform DWQ of any such changes. While the Division of Water Quality will not directly regulate this site through a ground water discharge permit, please be aware that discharge of pollutants to ground water is illegal and you would be held responsible if the operation, or facilities such as the process water pond, tanks or pipeline caused ground water quality degradation. If future project knowledge or experience indicates that ground water quality is threatened by this operation, the Executive Secretary may require that you apply for a ground water discharge permit in accordance with UAC R317-6-6.2.C.

To evaluate the chemistry of water stored in the process water pond, the plant operators should sample the water after one year of operation, and annually thereafter, and analyze process water samples for benzene, toluene, ethylbenzene, xylenes, naphthalene (EPA Method 8021B/8260B), total petroleum hydrocarbons diesel range organics (EPA Method 8015B/3545), total recoverable petroleum hydrocarbons (EPA Method 1664-SGT), volatile organic compounds (EPA Method GC/MS 8260B), semi-volatile organic compounds (EPA Method 8270C/3510C), total dissolved solids (EPA Method 160.1), and oil and grease (EPA Method 1664A). Please submit a report of the analytical results of all process water samples to Mark Novak of the Ground Water Protection Section.

Discharge of any process water to surface water is prohibited without first obtaining a Utah Pollutant Discharge Elimination System (UPDES) permit from DWQ. Although a drainage management plan has been submitted to DOGM to address erosion and sedimentation controls, this operation may require a UPDES storm water permit. Please contact Mike George of this office at (801) 538-9325 to determine if a storm water permit is required.

If you have any questions about this letter, please contact Mark Novak of the Ground Water Protection Section at (801) 538-6518.

Sincerely,

Rob Herbert, P.G., Manager
Ground Water Protection Section

MTN/RFH:fb

cc: Paul Baker, DOGM
Mike George, DWQ Storm Water
Sandra Wingert, DWQ TMDL
Tri-County Health Department